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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,116	04/09/2001	Abdallah Lyoussi	33126	5138

7590 04/15/2003

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EXAMINER

PALABRICA, RICARDO J

ART UNIT	PAPER NUMBER
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3641

DATE MAILED: 04/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/719,116

Applicant(s)

LYOUSSI ET AL.

Examiner

Rick Palabrica

Art Unit

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's amendment in Paper No. 13, revising claims 4, 6 and 9, is acknowledged.
2. Applicant traversed the use of Einfeld in rejecting claims on the grounds that his method is "based upon the use of several interrogative neutron spectra having different mean energies, whereas the device of claim 4 uses only one spectrum." Applicant's argument has been fully considered but found not persuasive. The above-cited feature upon which the applicant relies is not recited in rejected claim. Note that claim 4 recites, "irradiating the object by a neutron flux consisting of thermal, epithermal and fast neutrons and resulting from a sequence of fast neutron pulses..." (Underlining provided). The claim does not specify that the fast neutron pulses be generated by fast neutrons of **only** a single energy. Therefore, the several interrogative spectra in Einfeld are not precluded.

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

.Additionally, if said unrecited features are considered by the applicant to be critical to his invention, then such omission would amount to a gap between the essential elements. In this case, the claim(s) would be incomplete and would be rejected under 35 U.S.C. 112, second paragraph. See MPEP § 2172.01.

3. Applicant also traversed the use of Caldwell-1 (i.e., U.S. Patent No. 4,483,816) in rejecting the claims on the grounds that it is limited to determining fissile elements through the use of thermal interrogative neutrons, whereas claim 4 is a device for analyzing waste that may contain fissile and fertile radioisotopes through the use of thermal and fast interrogative neutrons. The examiner disagrees. First, claim 4 does not recite a waste package with fissile **and** fertile radioisotopes. Rather, the claim language is expressed in the alternative form, i.e., the material may fissile **or** fertile **or** both. Thus, Caldwell-1's transuranic waste is not precluded. Second, Caldwell-1 applies 14 MeV fast neutrons (e.g., see column 8, lines 25+), contrary to applicant's allegation that the reference only uses thermal interrogative neutrons. Third, the limitation relied upon by the applicant in the traverse, i.e., "a radioactive waste that may contain fissile and fertile radioisotopes" is essentially a method limitation or statement of intended or desired use. The statement of the apparatus claim, "for analyzing an object, for example, a radioactive waste package" does not serve to patentably distinguish the claimed structure over that of the reference, as long as the structure of the cited references is capable of performing the intended use. See MPEP 2111-2115.

See also MPEP 2114 that states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647.

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531.

[A]pparatus claims cover what a device is, not what a device does.”
Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525,1528.

As set forth in MPEP 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

The apparatus of Caldwell-1 is capable of being used in the same manner and for the intended or desired use as the claimed invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by either one of Einfeld (U.S. 3,222,521) or Caldwell et al. (U.S. 4,483,816).

Either one of these two references discloses a device for analyzing an object comprising: 1) means of irradiating a neutron flux consisting of thermal, epithermal and fast neutrons; 2) means of counting neutrons; and 3) means of processing neutron signals. Either one also discloses the neutron flux being generated by a fast neutron source in a pulse mode, and a means for thermalizing these fast neutrons.

As to the following clauses in claim 4: 1) lines 6-8, starting with the word “resulting” and ending with the word “material”; 2) lines 9-10, starting with the word “designed” and ending with the word “pulse”; 3) lines 11-18, starting with the word

"designed" and ending with the word "calibration", these are essentially method limitations or statements of intended or desired use. Therefore, these clauses, as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of any one of the references cited. See section 3 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caldwell ('816), in view of the combination of Caldwell et al. (U.S. 3,796,876) and Maniscalco et al. (U.S. 4,344,911). Caldwell ('816) discloses the applicant's claims except for the location of the neutron source in a fourth side of the containment and the use of a neutron multiplier material.

As indicated in section 4 above, Caldwell ('816) discloses claims 4 and 5 from which claims 6-10 depend.

As to claim 6, Caldwell ('816) disclose a containment that includes a central area in which the object to be assayed is placed (see Fig. 1). At least three sides are delimited by a thickness of moderator material, i.e., graphite and polyethylene. Neutron counting means (helium-3 detectors) are placed on all sides between the central area and the thickness of moderator material. These detectors are surrounded by a thickness

of neutron absorber (cadmium) and moderator material (polyethylene). There is also a waste package rotator to make the neutron irradiation uniform.

Caldwell ('816) discloses that the neutron generator source is placed in the cavity of the containment. Caldwell ('876) teaches a neutron source (4) for assaying waste samples that is disposed on a wall of the irradiating chamber (see Fig. 1).

Caldwell ('816) also does not disclose the use of a neutron multiplier. However, Maniscalco et al. teaches that lead is a good neutron multiplier because of its high (n , $2n$) cross section and low capture cross section (see column 6, lines 2+). One having ordinary skill in the art would have recognized the advantage of using a neutron multiplier to increase the yield of neutrons from a fast neutron source, and to use such multiplier in an assay apparatus using a neutron generator would have been *prima facie* obvious.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Caldwell ('816) by the teachings of the combination of Caldwell ('876) and Maniscalco et al., in order to have a neutron source placed in a fourth side of the containment, and have a thickness of neutron multiplier material between the central area and the neutron source, and between the central area and the neutron counting means, to gain the advantages thereof (i.e., higher neutron flux), because such modification is no more than the use of a well-known neutron multiplier material, and the substitution of one configuration of the neutron source location by another well-known configuration.

For the benefit of the applicant, Lasche (U.S. 4,735,762) also teaches the use of lead as a neutron multiplier.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 7:00-4:30, Mon-Fri; 1st Friday off.

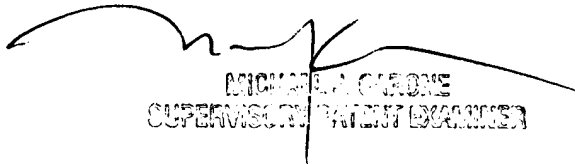
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. The fax phone numbers

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for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

RJP
April 7, 2003



MICHAEL A. CARONE
SUPERVISOR, PATENT EXAMINER